



Magnitude and direction of integers



- 1 For each of these statements, write down:

(i) the directed number that matches it and, (ii) the magnitude of the directed number.

- a The tree in Jamie's yard grew 3 metres in one year.

(i) Directed number: $+3\text{m}$ (ii) Magnitude of the tree's growth: 3m

The same tree was then trimmed which reduced the height of the tree by 4 metres.

(iii) Directed number: -4m (iv) Magnitude of the reduction in height: 4m

- b Aki walked 250 m West from her starting point.

(i) Directed number: -250m (ii) Magnitude of the distance Aki walked: 250m

Aki then turned around and walked another 600 m East

(iii) Directed number: $+600\text{m}$ (iv) Magnitude of this distance walked by Aki: 600m

- c Sean's bank account balance earned interest and increased by \$4.

(i) Directed number: $+\$4$ (ii) Magnitude of Sean's bank balance increase: $\$4$

Sean's bank account balance then changed due to being charged \$3 in bank fees.

(iii) Directed number: $-\$3$ (iv) Magnitude of the change in Sean's bank balance: $\$3$

- 2 Think carefully for each of these statements and write down the directed number that matches the overall change.

- a Pip was given \$24 and then spent \$15 on a dress the same day.

Directed number for the overall change in money that day: $+24 - 15 =$

$+\$9$

- b The temperature initially increased by 6 degrees and then increased by a further 4 degrees.

Directed number for the overall change in temperature: $+6 + 4 =$

$+10^\circ\text{C}$

- c Nigel went down 6 rungs on a ladder and then up 2 rungs.

Directed number for the overall change in ladder rungs: $-6 + 2 =$

-4 rungs

- d Cameron's coolness rose by 4 points when he played guitar, and a further 20 points when he did maths.

$+4 + 20 =$

Directed number for the overall change in Cameron's coolness after doing both activities: $+24 \text{ points}$

- e Shiomee hiked 12 km North, 2 km East and then 19 km South. North is the positive direction.

Directed number for the overall change in Shiomee's North-South movement: $+12 - 19 =$

-7 km

- f Adele's hair grew from 20 cm to 30 cm long at the back. After a hair cut it was only 17 cm long.

Directed number for the overall change in Adele's hair length from the initial 20 cm: $20 + 10 - 13 =$

-3 cm

$$20 + (?) = 17 \Rightarrow 20 - 17 = -(?)$$

$$20 + (-3) = 17$$

Directed Numbers

Multiplication Postscript © 3P Learning

$$3 = -(-3)$$

$$20 - 3 = 17$$



SERIES TOPIC



Ascending and descending order



- 1 Circle the word that represents the order of the values in these statements:

a Shortest to Tallest

Ascending

Descending

b Longest to shortest

Ascending

Descending

c Closest to farthest

Ascending

Descending

d Warmest to Coolest

Ascending

Descending

e Heaviest to lightest

Ascending

Descending

f Thinnest to widest

Ascending

Descending

- 2 Arrange the following groups of numbers into **ascending** order (lowest to highest).

a 14, 0, 17, 3

0, 3, 14, 17

b 21, 25, 20, 19, 22

19, 20, 21, 22, 25

c -10, -8, -12, -4, -16

-16, -12, -10, -8, -4

d 2.2, 2.4, -2.6, 0, -2

-2.6, -2, 0, 2.2, 2.4

e -1, 11, $1\frac{1}{5}$, -1.5, 1, $\frac{1}{4}$

-1.5, -1, $\frac{1}{4}$, 1, $1\frac{1}{5}$, 11

- 3 Arrange the following groups of numbers into **descending** order (highest to lowest).

a 2, 16, 5, 8

16, 8, 5, 2

b 40, 31, 32, 38, 29

40, 38, 32, 31, 29

c -19, -11, -16, -18, -13

-11, -13, -16, -18, -19

d 1.6, 1.9, -1.3, -1.0, 1.2

1.9, 1.6, 1.2, -1.0, -1.3

e 0, $-\frac{1}{4}$, $-2\frac{1}{2}$, -2.1, 1.2, -30

1.2, 0, $-\frac{1}{4}$, -2.1, $-2\frac{1}{2}$, -30

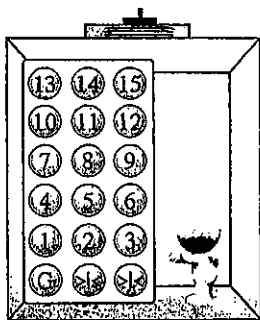


Ascending and descending order

Combo Time!

4 Elevator Riding

A department store elevator operator started work on the 3rd floor of the 15 storey building. For the first 15 minutes of work, the operator travelled to the following floors in the order written:



- ☐ 12th floor $3+9=12$
- ☐ 8th floor $12-4=8$
- ☐ Ground floor $8-8=0$
- ☐ 2nd floor $0+2=2$
- ☐ Ground floor $2-2=0$
- ☐ 15th floor $0+15=15$
- ☐ 4th floor $15-11=4$
- ☐ 10th floor $4+6=10$
- ☐ 5th floor $10-5=5$

- a If up is positive and down is negative, write numbers that represent the movement of the elevator operator during the first 15 minutes of work.

+9, -4, -8, +2, -2, +15, -11, +6, -5

- b Arrange the directed movements into descending order.

+15, +9, +6, +2, -2, -4, -5, -8, -11

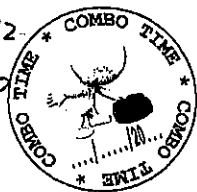
- c During the first 15 minutes, did the operator mostly ascend or descend in the elevator? Explain your answer.

Total ascending = $+(15+9+6+2) = +32$

Total descending = $-(2+4+5+8+11) = -30$

\therefore The operator mostly ascend

or



It start at 3rd floor
and ended at 5th floor
 $5-3 = +2$

The operator ascend 2 floor more than descend
 \therefore the operator mostly ascend

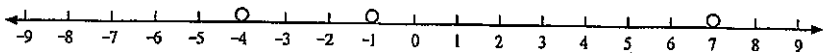
The number line

Directed numbers can be plotted on a number line to instantly see their order of value.



Lower numbers are further left and higher numbers are further right.

Display the numbers -4 , -1 , 7 on a number line.



Use the plotted points to compare the values of:

(i) -4 , -1 : -4 is further left than -1 , $\therefore -4 < -1$

(ii) -1 , 7 : -1 is further left than 7 , $\therefore -1 < 7$

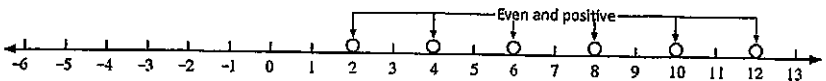


Remember:
 $<$ means 'less than' and
 $>$ means 'greater than'



This example requests numbers to be plotted using a given rule.

Display all the **even positive integers** between -5 and 13 on a number line.



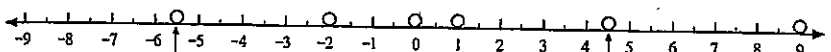
Write these numbers in **descending order**.

Read the numbers from right to left (\leftarrow)

\therefore The numbers in descending order are: $12, 10, 8, 6, 4, 2$

Half values are plotted by placing the dot half-way between the integers on either side.

Display the numbers 1 , -2 , $4\frac{1}{2}$, -5.5 , 9 , 0 on a number line.



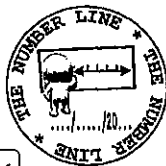
Write these numbers in **ascending order**.

Read the numbers from left to right (\rightarrow)

\therefore The numbers in ascending order are: $-5.5, -2, 0, 1, 4\frac{1}{2}, 9$



The number line



- 1 Insert the correct symbol $<$ (less than) or $>$ (greater than) for each of these.

a $6 \boxed{>} 4$

b $3 \boxed{>} -12$

c $-5 \boxed{<} 4$

d $-11 \boxed{<} -2$

e $8 \boxed{>} -8$

f $-7\frac{1}{2} \boxed{<} -7$

g $-\frac{1}{2} \boxed{<} 0$

h $9\frac{1}{2} \boxed{<} 9.9$

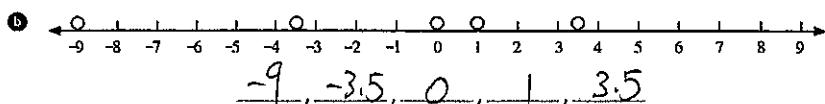
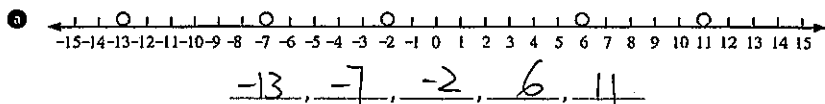
i $-5.1 \boxed{>} -5.8$

j $-1.8 \boxed{<} 1.2$

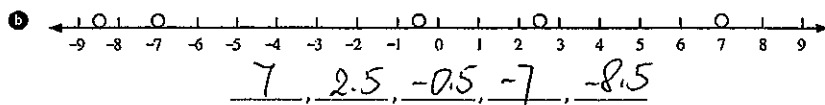
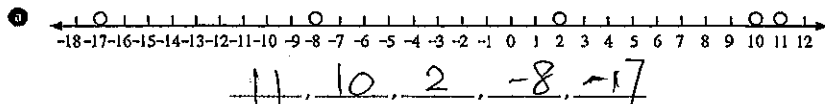
k $-12.5 \boxed{>} -21.5$

l $11\frac{1}{2} \boxed{>} 11\frac{1}{3}$

- 2 List the numbers displayed below in ascending order



- 3 List the numbers displayed below in descending order

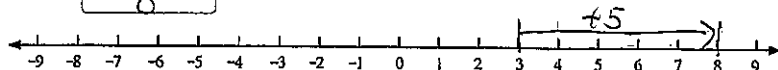




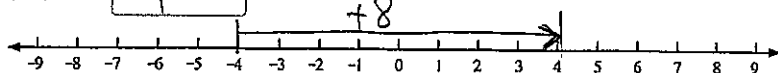
Addition and subtraction using a number line

- 1 Show the calculation for each of these on a number line and write down the answer.

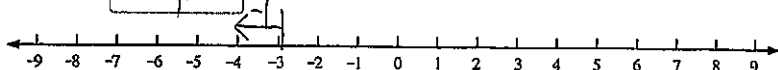
a $3 + 5 =$ 8



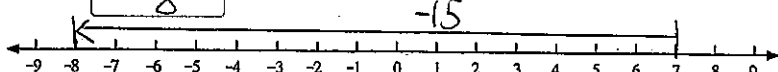
b $(-4) + 8 =$ 4



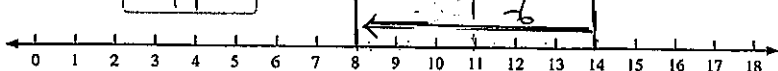
c $(-3) - 1 =$ -4



d $7 - 15 =$ -8

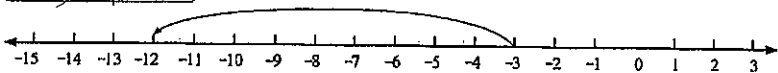


e $14 - 6 + 3 =$ 11

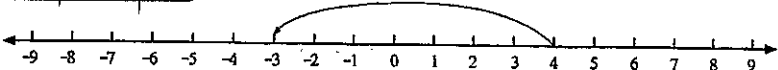


- 2 Write down the calculation to get the given answer shown on each of these number lines:

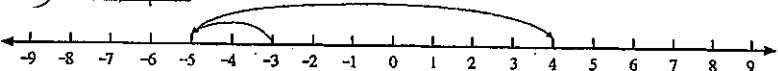
a (-3) - 9 = -12



b 4 - 7 = -3



c (-3) - 2 + 9 = 4

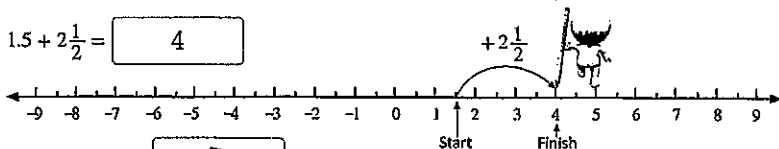




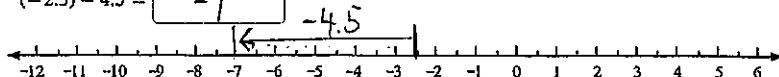
Addition and subtraction using a number line

- 3 Show the calculation for each of these on a number line and state the answer.

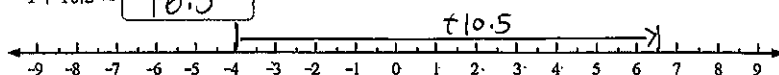
a $1.5 + 2\frac{1}{2} =$ 4



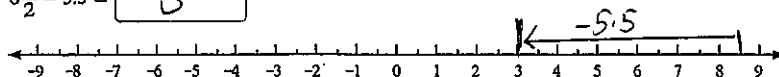
b $(-2.5) - 4.5 =$ -7



c $-4 + 10.5 =$ +6.5



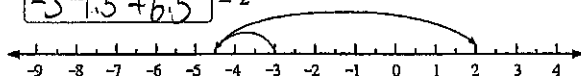
d $8\frac{1}{2} - 5.5 =$ 3



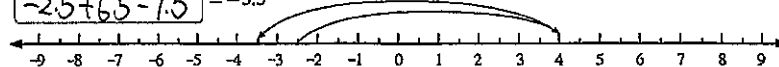
Try these trickier ones!

- 4 Write down the calculation shown on each of these number lines:

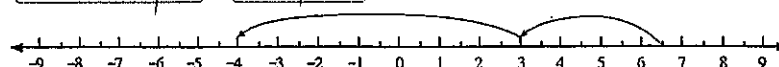
a -3 - 1.5 + 6.5 = 2



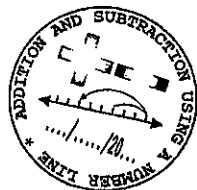
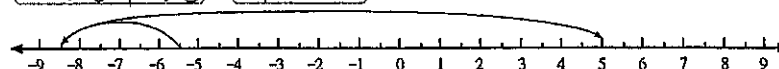
b -2.5 + 6.5 - 7.5 = -3.5



c 6.5 - 3.5 - 7 = -4



d -5.5 - 3 + 13.5 = +5



Adding and subtracting directed numbers

The exercises in Dr Thermos' laboratory were examples of adding and subtracting directed numbers.

Here is what happened:

$$\oplus = +1^{\circ}\text{C}$$

$$\ominus = -1^{\circ}\text{C}$$

Addition $\left\{ \begin{array}{l} \text{When a } \oplus \text{ was added, the temperature went up} \\ \text{When a } \ominus \text{ was added, the temperature went down} \end{array} \right.$

subtraction $\left\{ \begin{array}{l} \text{When a } \oplus \text{ was removed (Subtracted), the temperature went down} \\ \text{When a } \ominus \text{ was removed (Subtracted), the temperature went up} \end{array} \right.$

The rules for adding and subtracting represent the same thing.

Use the pattern above to calculate these:

$$\oplus = +1 \text{ and } \ominus = -1$$

Addition $\left\{ \begin{array}{l} 5 + \oplus = 5 + (+1) = 5 + 1 = 6 \quad + + = + \text{ (Same signs together means plus)} \\ 5 + \ominus = 5 + (-1) = 5 - 1 = 4 \quad + - = - \text{ (Opposite signs together means minus)} \end{array} \right.$

Subtraction $\left\{ \begin{array}{l} 5 - \oplus = 5 - (+1) = 5 - 1 = 4 \quad - + = - \text{ (Opposite signs together means minus)} \\ 5 - \ominus = 5 - (-1) = 5 + 1 = 6 \quad - - = + \text{ (Same signs together means plus)} \end{array} \right.$

These rules work for all kinds of directed additions and subtractions

Calculate these additions and subtractions:

(i) $3 + (-2) = 3 - 2 = 1$ + - = - (ii) $(-2) + 3 = -2 + 3$ Same as (i) but in a different order = 1

(iii) $6 - (-2.5) = 6 + 2.5 = 8.5$ - - = + (iv) $(-11) - (-4) = -11 + 4 = -7$ - - = +

(v) $2\frac{1}{2} + (-3) = 2\frac{1}{2} - 3 = -\frac{1}{2}$ + - = - (vi) $(-12.2) + (-5.2) = -12.2 - 5.2 = -17.4$ + - = -

(vii) $9.5 - (-8.5) + 6 = 9.5 + 8.5 + 6 = 24$ (viii) $4\frac{1}{3} + (-1) - (-6\frac{2}{3}) = 4\frac{1}{3} - 1 + 6\frac{2}{3} = 10$



Adding and subtracting directed numbers

Calculate these additions and subtractions of integers without a calculator.



1 a $-5 + 3$

$$= -(5-3)$$

$$= -2$$

d $-11 - 8$

$$= -(11+8)$$

$$= -19$$

e $6 + (-3)$

$$= 6-3$$

$$= 3$$

f $-4 + (-5)$

$$= -4-5$$

$$= -9$$

m $20 - (-21)$

$$= 20+21$$

$$= 41$$

b $-4 + 7$

$$= 7-4$$

$$= 3$$

c $1 - 16$

$$= -(16-1)$$

$$= -15$$

h $30 + (-17)$

$$= 30-17$$

$$= 13$$

k $-10 + (-19)$

$$= -(10+19)$$

$$= -29$$

n $-18 - (-6)$

$$= -18+6$$

$$= -12$$

c $-4 - 4$

$$= -(4+4)$$

$$= -8$$

f $16 - 22$

$$= -(22-16)$$

$$= -6$$

i $0 + (-8)$

$$= 0-8$$

$$= -8$$

l $13 - (-5)$

$$= 13+5$$

$$= 18$$

o $-15 - (-26)$

$$= -15+26$$

$$= 11$$

2 a $4 - 8 + 2$

$$= 6-8$$

$$= -2$$

c $-3 + 4 - 8 - 7$

$$= -18+4$$

$$= -14$$

e $2 - (-6) - 7$

$$= 2+6-7$$

$$= 1$$

b $-9 + 6 - 8$

$$= -17+6$$

$$= -11$$

d $-7 + (-4) + 13$

$$= -11+13$$

$$= 2$$

f $5 + (-1) - (-14)$

$$= 5-1+14$$

$$= 18$$

Multiplying and dividing directed numbers

The rules for multiplying and dividing are similar to adding and subtracting:

Multiplication	Positive	×	Positive	=	Positive	$++ = +$	(Same signs mean answer is positive)
	Positive	×	Negative	=	Negative	$+ - = -$	(Opposite signs mean answer is negative)
	Negative	×	Positive	=	Negative	$- + = -$	(Opposite signs mean answer is negative)
	Negative	×	Negative	=	Positive	$-- = +$	(Same signs mean answer is positive)

Division { The exact same rules apply because division is the opposite operation to multiplication!

These rules always apply to all multiplication and division calculations.

Calculate these multiplications and divisions:

(i) $-4 \times 3 = -12$

$- \times + = -$

(ii) $-14 \div 2 = -7$

$- \div + = -$

(iii) $12 \times (-1.5) = -18$

$+ \times - = -$

(iv) $24 \div (-4.8) = -5$

$+ \div - = -$

(v) $-8 \times (-3) = 24$

$- \times - = +$

(vi) $-46.8 \div (-18) = 2.6$

$- \div - = +$

(vii) $-3\frac{1}{2} \times 6 = -21$

$- \times + = -$

(viii) $-32 \div (-3\frac{1}{5}) = 10$

$- \div - = +$

Be careful squaring (or cubing) directed numbers as brackets affect the question.

(ix) $(-3)^2 = (-3) \times (-3) = 9$

(x) $-3^2 = -(3 \times 3) = -9$

If more than two terms are multiplied or divided, simplify by calculating in order from left to right.

Simplify these mixed questions:

(i) $6 \times (-3) \div 9$

$= -18 \div 9$

$= -2$

Calculate $6 \times (-3)$ first

$+ \times - = -$

$- \div + = -$

(ii) $(-2) \div 0.5 \times (-3)$

$= -4 \times (-3)$

$= 12$

Calculate $(-2) \div 0.5$ first

$- \div + = -$

$- \times - = +$

(iii) $(-1)^3$

$= (-1) \times (-1) \times (-1)$

$= 1 \times (-1)$

$= -1$

Calculate $(-1) \times (-1)$ first

$- \times - = +$

Calculate $1 \times (-1)$ next

$+ \times - = -$

(iv) $8\frac{4}{5} \times 5 \div (-2) \div (-11)$

$= 44 \div (-2) \div (-11)$

$= -22 \div (-11)$

$= 2$

Calculate $8\frac{4}{5} \times 5$ first

$+ \times + = +$

Calculate $44 \div (-2)$ next

$+ \div - = -$

$- \div - = +$



Multiplying and dividing directed numbers

1 Simplify these without using a calculator:

a $3 \times (-7)$

$$= -(3 \times 7) \\ = -21$$

d $48 \div (-4)$

$$= -(48 \div 4) \\ = -12$$

e $-12 \div (-12)$

$$= +(12 \div 12) \\ = +1$$

b -6×8

$$= -(6 \times 8) \\ = -48$$

e $-16 \times (-1)$

$$= +(16 \times 1) \\ = 16$$

h $21 \div (-21)$

$$= -(21 \div 21) \\ = -1$$

c $-36 \div 12$

$$= -(36 \div 12) \\ = -3$$

f $-2 \times (-2)$

$$= +(2 \times 2) \\ = +4$$

i $3 \times (-4) \div 6$

$$= -(3 \times 4 \div 6) \\ = -2$$

2 Simplify these without using a calculator:

a $-24 \div 3 \div (-8)$

$$= -8 \div (-8) \\ = 1$$

d -5^2

$$= -5 \times 5 \\ = -25$$

f -2^3

$$= -(2 \times 2 \times 2) \\ = -8$$

i $6^3 \div (-2)$

$$= \frac{6 \times 6 \times 6}{2} \\ = -108$$

b $-18 \div (-6) \times 4$

$$= +3 \times 4 \\ = +12$$

e $(-4)^2$

$$= -4 \times (-4) \\ = +16$$

h $(-2)^2 \div 4$

$$= \frac{(-2 \times -2)}{4} \\ = +1$$

k $2^4 \div -4^2$

$$= \frac{2 \times 2 \times 2 \times 2}{-4 \times 4} \\ = -1$$

c $-5 \times 2 \times (-1) \times 2$

$$= -10 \times -2 \\ = +20$$

i $(-3)^3$

$$= (-3) \times (-3) \times (-3) \\ = -27$$

l $(-3)^2 \times -3$

$$= (-3) \times (-3) \times -3 \\ = -27$$

m $9^2 \div -3^2 \times (3)$

$$= \frac{9 \times 9}{-3 \times 3} \times 3 \\ = -27$$



Combining the basic operations

Questions that mix multiplying/dividing with adding/subtracting need to be done in a certain order.

Multiplication or division operations are ranked the highest and therefore must be completed first.

Calculate these combined operations questions:

(i) $-2 + 3 \times 5$

$$\begin{array}{l} -2 + \underline{3 \times 5} = -2 + 15 \\ \text{Do this first} \quad = 13 \end{array}$$

Add -2 and 15

(ii) $35 \div (-5) - 1$

$$\begin{array}{l} \underline{35 \div (-5)} - 1 = -7 - 1 \\ \text{Do this first} \quad = -8 \end{array}$$

Subtract of 1 from -7

If more than one multiply/divide sign, work left to right. Do the same for addition/subtraction.

Calculate these combined operations questions:

(i) $-28 \div 7 \times 3 + 6$

$$\begin{array}{l} \underline{-28 \div 7} \times 3 + 6 = -4 \times 3 + 6 \\ \text{Do this first} \quad = -12 + 6 \\ \quad \quad \quad = -6 \end{array}$$

Multiply -12 by 3
Add -12 and 6

(ii) $17 - 4 - (-10) \times 2$

$$\begin{array}{l} 17 - 4 - \underline{(-10) \times 2} = 17 - 4 - (-20) \\ \text{Do this first} \quad = 13 - (-20) \\ \quad \quad \quad = 33 \end{array}$$

Subtract 4 from 17
Subtract -20 from 13 ($= 13 + 20$)

(iii) $24 \div 3 + (-5) \times 4$

$$\begin{array}{l} \underline{24 \div 3} + (-5) \times 4 = 8 + (-5) \times 4 \\ \text{Do this first} \quad = 8 + (-20) \\ \quad \quad \quad = -12 \end{array}$$

Multiply -5 by 4
Add 8 and -20

(iv) $6 \times (-3) - 210 \div 30 \times (-2)$

$$\begin{array}{l} \underline{6 \times (-3)} - 210 \div 30 \times (-2) = -18 - 210 \div 30 \times (-2) \\ \text{Do this first} \quad = -18 - 7 \times (-2) \\ \quad \quad \quad = -18 + 14 \\ \quad \quad \quad = -4 \end{array}$$

Divide -210 by 30
Multiply -7 by -2
Add -18 and 14



Order of operations

- 1 Simplify these directed number calculations using the correct order of operations without a calculator:

$$\begin{aligned} \text{a } (16 - 10) \times 4 \\ &= 4 \times 4 \\ &= 16 \end{aligned}$$

$$\begin{aligned} \text{b } 34 \div (6 + (-8)) \\ &= 34 \div (-2) \\ &= -17 \end{aligned}$$

$$\begin{aligned} \text{c } -5 \times (27 \div 9) \\ &= -5 \times 3 \\ &= -15 \end{aligned}$$

$$\begin{aligned} \text{d } (-13 - (-19)) \times 3 \\ &= (-13 + 19) \times 3 \\ &= 6 \times 3 \\ &= 18 \end{aligned}$$

$$\begin{aligned} \text{e } -5 \times (14 - 9) - 5 \\ &= -5 \times 5 - 5 \\ &= -25 - 5 \\ &= -30 \end{aligned}$$

$$\begin{aligned} \text{f } 4 \times (36 \div 2) - (-4) \\ &= 4 \times 18 + 4 \\ &= 72 + 4 \\ &= 76 \end{aligned}$$

$$\begin{aligned} \text{g } 18 + (16 \div 4 + 10) \\ &= 18 + (4 + 10) \\ &= 18 + 14 \\ &= 32 \end{aligned}$$

$$\begin{aligned} \text{h } (18 \div 2 - (-4)) - 7 \\ &= (9 + 4) - 7 \\ &= 13 - 7 \\ &= 6 \end{aligned}$$

- 2 Simplify these calculations containing indices using the correct order of operations without a calculator:

$$\begin{aligned} \text{a } (-2)^2 \div (-2) \\ &= \frac{(-2) \times (-2)}{(-2)} \\ &= -2 \end{aligned}$$

$$\begin{aligned} \text{b } (-7 - 5) \times (-1)^3 \\ &= -12 \times (-1) \\ &= +12 \end{aligned}$$

$$\begin{aligned} \text{c } (8 - 14)^2 - 16 \\ &= (-6)^2 - 16 \\ &= 36 - 16 \\ &= 20 \end{aligned}$$

$$\begin{aligned} \text{d } (3^3 - 43) \div 8 \\ &= (27 - 43) \div 8 \\ &= \frac{-16}{8} \\ &= -2 \end{aligned}$$



Order of operations



3 Try simplify these trickier ones using the correct order of operations:

$$\begin{aligned} \text{a } 26 \div (14 + 2 \times 6) + (-1)^2 \\ = 26 \div (14 + 12) + 1 \\ = 26 \div 26 + 1 \\ = 1 + 1 = 2 \end{aligned}$$

$$\begin{aligned} \text{b } -100 \times (12 - 32 \div (-4)) \div 40 \\ = -100 \times (12 + 8) \div 40 \\ = -100 \times 20 \div 40 \\ = -50 \end{aligned}$$

$$\begin{aligned} \text{c } (11 \times 2^3 - 10) \div 39 + 8 \\ = (11 \times 8 - 10) \div 39 + 8 \\ = (88 - 10) \div 39 + 8 \\ = 78 \div 39 + 8 \\ = 2 + 8 = 10 \end{aligned}$$

$$\begin{aligned} \text{d } 9 \times ((-8) - 8 \div 4 + 16) - 4^3 \\ = 9 \times (-8 - 2 + 16) - 64 \\ = 9 \times 6 - 64 \\ = 54 - 64 \\ = -10 \end{aligned}$$

$$\begin{aligned} \text{e } 200 \div (-4) \times (-3) \div (16 - 14 \times (-1)^3) \\ = 200 \div (-4) \times (-3) \div (16 + 14) \\ = 200 \div (-4) \times (-3) \div 30 \\ = -50 \times (-3) \div 30 \\ = +150 \div 30 \\ = +5 \end{aligned}$$



Here is a summary of the important things to remember for directed numbers

Types of numbers

- **Positive and negative numbers** are numbers that have both size and direction.
Eg: +2 or -3
- **Rational numbers** can be written as a fraction. They include whole numbers and terminating or recurring decimals. Eg: 8, 2.3, $4\frac{5}{2}$, $\frac{1}{2}$, $\sqrt{4}$.
- **Irrational numbers** cannot be written as a fraction. These include decimals that keep going without following a pattern, and roots of numbers that are not perfect squares/cubes etc.
Eg: $\sqrt{3}$, 1.2938164928..., π .
- **Integers** are whole numbers only. They are rational and have no decimal or fraction parts.
Eg: 3, -4, 100.

Magnitude and direction of numbers

- **Directed numbers** are positive (+) or negative (-) whole numbers.
- They show both the size (**magnitude**) and **direction** of values associated with change.
- It is important to first decide what will be the positive direction.

Ascending and descending order

Ascending order = lowest to highest

Descending order = highest to lowest

Adding and subtracting directed numbers

Addition	{	+	+	=	+	(Same signs together means plus)
	{	+	-	=	-	(Opposite signs together means minus)
Subtraction	{	-	+	=	-	(Opposite signs together means minus)
	{	-	-	=	+	(Same signs together means plus)

Multiplying and dividing direct numbers

Multiplication	{	Positive	×	Positive	=	Positive	+	+	=	+	(Same signs mean answer is positive)
	{	Positive	×	Negative	=	Negative	+	×	=	-	(Opposite signs mean answer is negative)
	{	Negative	×	Positive	=	Negative	-	×	=	-	(Opposite signs mean answer is negative)
	{	Negative	×	Negative	=	Positive	-	×	=	+	(Same signs mean answer is positive)

Division { The exact same rules apply because division is the opposite operation to multiplication

Order of operations

The word **PIDMAS** helps to remember the order in which we need to perform calculations.

